

**UNIT COSTS for ARMY FACILITIES - MILITARY CONSTRUCTION**  
**PAX NEWSLETTER NO. 3.2.2, dated 30 Mar 2006**  
**APPENDIX - A, PART - I & II ( Buildings and Support Facilities)**

This updated newsletter supersedes the PAX Newsletter No. 3.2.2, **15 March 2005**, and updates the Appendix A, Facility Unit Cost Table, Appendix C, Tri-Service Military Construction Program (MCP) Index, and Table 1, Size Adjustment Factors, contained in TM 5-800-4, Programming Cost Estimates for Military Construction, dated May 1994. It may be used as a guide for preparation and/or review of the Army military construction cost estimates for programming and budgeting purposes for FY **2008/2009** and beyond unless otherwise noted. This newsletter is also published and maintained on the web page at [http://www.hq.usace.army.mil/cemp/e/ec/ec\\_new.htm](http://www.hq.usace.army.mil/cemp/e/ec/ec_new.htm)

**1. APPENDIX A - FACILITY UNIT COST TABLE (FOR FY08 and later MILCON, BRAC, IGPBS Projects)**

a. Most unit costs are based on historic construction award data for projects awarded after January 2000. In the event that we do not have any recent awarded project or a very limited number of awarded projects for a category code, we escalated last years unit cost using the OSD escalation rates as presented in Appendix - C. The unit cost database include only new construction projects, and does not include data from renovation or addition/alteration projects. The unit cost and the reference building size for the same facility type is identical in both the PAX Newsletter and DoD Pricing Guide, UFC 3-701-06.

b. The tabulation is arranged numerically by category codes. Category code series descriptions are contained in DA Pamphlet 415-28, Guide to Army Real Property Category Codes, 3 October 2003. Where unit costs span a group of subcategories, the five (5) digit category code is designated by adding XX behind the three (3) digit main category code for this group. For example, 851XX and 852XX are designated for roads, streets, parking, apron and sidewalks pavements.

c. Escalation - Unit costs are escalated to 1 October **2008**, the assumed midpoint of construction for **FY08** projects, with an area cost factor (ACF) of 1.00. The MCP inflation indices shown in **Appendix C** should be used to escalate the **FY08** unit costs beyond **1 Oct 08**. These unit costs include installed (built-in) building equipment and furnishings normally funded by the MILCON funds as described in AR 415-15, contractor's markup cost for overhead & profit, but do not include allowances for construction contingencies and supervision, inspection, and overhead (SIOH), or construction cost growth resulting from user changes, unforeseen site conditions, or contract document errors and omissions. Unit costs for DoD medical facilities include category A and B equipment, but do not include category E and F equipment costs.

d. The unit costs for Primary Facilities (buildings) in Appendix A, Part I, are for the primary facilities gross areas only, and do not include costs for support facilities, equipment acquired with other fund (non-MILCON) sources, anti-terrorism/force protection, sustainable construction features, or construction cost growth resulting from unforeseen site conditions or user requested change orders. For medical facilities, the building costs include Categories A and B equipment, but exclude Categories E and F equipment.

d. Unit costs should be adjusted by the appropriate area cost factor, cost escalation factor as described in Appendix C, size adjustment factor in Table I, and other adjustment factors as described in the TM 5-800-4, when applicable. The ACF list is contained in Appendix B, Location Adjustment Factors in the TM 5-800-4, and updated by the latest PAX Newsletter No. 3.2.1, Area Cost Factors Indexes, which is also available on the web page as addressed above.

e. Size Adjustment Tables, Table -1: Building size identified in Part I of Appendix A is a reference size, and may not represent the standard size shown in the Army Standard Facilities design criteria. Table I, Size Adjustment Factors, shows a correlation between project size and construction cost, and is used to

determine an appropriate size adjustment factor for the proposed facility.

g. Chart A in Appendix A contains unit costs for Sitework Utility Piping. Chart C in Appendix A contains information for unit of measurement conversion factors between Metric and English Systems.

## **2. APPENDIX C - TRI-SERVICE MILITARY CONSTRUCTION PROGRAM (MCP) INDEX**

Unit costs are escalated to 1 Oct 2008, the assumed midpoint of construction for a typical FY08 MCA project at a location with an Area Cost Factor of 1. The Military Construction Program (MCP) cost index for 1 October 2008 is 2451. For a project with an anticipated midpoint of construction date other than 1 October 2008, a cost escalation factor can be determined from this appendix as follows:

Project Anticipated Midpoint Date - **1 January 2010 (MCP Index = 2516)**

Cost Escalation Factor = MCP Index **1 Jan 2010 / MCP Index 1 Oct 2008 = 2516/2451 = 1.0263**

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**APPENDIX A - FACILITY UNIT COST TABLE ( Part - I, Buildings and Major Facilities)**

**NOTE:** Based on programmatic targets for MILCON Transformation, a 15% reduction in unit cost will be warranted for all FY08 Army MILCON/BRAC/IGPBS projects (vertical construction only), with the exception of the category codes in red below (14182, 14183, 14185, 7211, & 72210). Failure to meet the 15% reduction target shall require justification when submitting cost estimates (DD1391 and/or ENG 3086) to ACSIM/HQUSACE. Range, Army Family Housing projects, and the projects at overseas locations will be exempted from this requirement; but projects at Alaska and Hawaii need to comply with the requirement.

CATEGORY CODE	FACILITY TYPE	REFERENCE SIZE	UNIT	UNIT COST \$/Unit	REMARK
111XX	AIRFIELD RUNWAYS				SEE CATCODE 851XX
112XX	AIRFIELD TAXIWAYS				SEE CATCODE 851XX
113XX	AIRFIELD APRONS				SEE CATCODE 851XX
116XX	AIRFIELD MISC. PAVING				SEE CATCODE 851XX
124XX	FUEL STORAGE (OPERATING)	1,000	GA	\$4.40	UNDERGRD STG - INCLUDES EXCAVATION, BACKFILL & MANHOLE, EXCLUDES EXTERIOR PIPING & PUMPING
		5,000	GA	\$4.20	
		10,000	GA	\$4.00	
		20,000	GA	\$3.90	
		30,000	GA	\$3.70	
13120	COMMUNICATIONS CENTER	6,000	SF	\$204.00	NO SHIELDING
FAC 1312	SATELLITE COMMUNICATIONS CENTER	6,000	SF	\$568.00	W/ SHIELDING & GENERATOR
13131	INFORMATION PROCESS CTR (Also Referred To as DATA PROCESSING CTR)	21,000	SF	\$220.00	AUTOMATIC DATA PROCESSING FACILITY W/ RAISED FLOOR, ADMIN & STORAGE AREAS
13310	FLIGHT CONTROL TOWER	4,500	SF	\$721.00	STAND ALONE
14110	AIRFIELD OPERATIONS BLDG	10,000	SF	\$259.00	FLIGHT OPERATIONS, AIRFIELD HQ FUNCTIONS W/O TOWER
14112	AVIATION UNIT OPS BLDG	12,000	SF	\$171.00	AVN UNIT HQ (ADMINISTRATIVE) & SUPPLY STORAGE
14113	ACCESS CONTROL FAC	280	SF	\$198.00	SENTRY STATION (THIS CATCODE INDICATES A BUILDING, AND NOT JUST AN OPEN SIDED SHELTER)
14114	CIDC FIELD OPERATIONS BLDG	9,400	SF	\$149.00	
14129	TRAINING AIDS CENTER	800	SF	\$123.00	
14132	READY BUILDING/ADACG FAC	20,000	SF	\$133.00	ARRIVAL & DEPARTURE AIRFIELD CONTROL GROUP FACILITIES
14162	SCIF FACILITY	25,000	SF	\$186.00	
14165	FUELING/POL SUPPORT BLDG	195	SF	\$216.00	HOUSES PUMPING EQUIPMENT. ADD PUMPS (\$4500 EA) ADD STG TANKS (SEE CATCODE 124XX) AND PAVING (SEE CATCODE 851XX)
14182	BRIGADE HQS BLD*	11,000	SF	175.00*	
14183	BATTALION HQS BLDG*	11,000	SF	157.00*	
14185	COMPANY OPS FACILITY*	8000 EA (ADMIN MODULE SIZE ONLY)	SF	135.00*	THIS UNIT COST REFLECTS THE MAXIMUM ALLOWABLE COMBINED PER SF COST OF ADMIN & READINESS MODULES. AREA FOR ADMIN & READINESS MODULES WILL BE LISTED SEPARATELY. UNIT COSTS FOR ADMIN & READINESS MODULES WILL NOT EXCEED \$157 AND \$108 RESPECTIVELY. COVERED HARDSTAND COST IS NOT INCLUDED
14955	WASH PLATFORM, ORG	1	EA	\$70,410.00	2 VEHICLES - LOW PRESSURE W/ WASHWATER TREATMENT
14960	GREASE RACK	1	EA	\$55,130.00	2 VEHICLES
14962	CENTRALIZED WASH FAC	1	EA	\$6,877,860.00	16 STATIONS WITH WASHWATER RECYCLING
17112	FLIGHT SIMULATOR BLDG	32,000	SF	\$144.00	BUILDING ONLY
17119	ORGANIZATIONAL CLASSROOM	32,000	SF	\$131.00	CAN BE STAND ALONE OR LOCATED WITHIN BATTALION HQS BLD, TRAINEE BARRACKS, ETC.
17120	GENERAL INSTRUCTION BLDG	25,000	SF	\$169.00	DISTINCT FROM ORGANIZATIONAL CLASSROOMS

**APPENDIX A - FACILITY UNIT COST TABLE ( Part - I, Buildings and Major Facilities)**

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CATEGORY CODE	FACILITY TYPE	REFERENCE SIZE	UNIT	UNIT COST \$/Unit	REMARK
17121	INDOOR FIRING RANGE	5,600	SF	\$116.00	
17123	RANGE SUPPORT BLDG	2,000	SF	\$113.00	
	FIELD RANGE LATRINES	600	SF	\$178.00	
17131	COMPACT ITEM REPAIR INST BLDG	6,000	SF	\$124.00	
17132	GEN ITEM REPAIR INST BLDG	25,000	SF	\$116.00	
17133	VEHICLE MAINT INST BLDG	30,000	SF	\$153.00	
17134	AIRCRAFT MAINT INST BLDG	35,000	SF	\$224.00	HIGH BAY BUILDING
17135	LABORATORY INST BLDG	9,000	SF	\$197.00	
17136	AUTO-AIDED INSTRUCTION BLDG	25,000	SF	\$200.00	
17137	MATERIAL HANDLING INST BLDG	40,000	SF	\$83.00	
17139	COVERED TRAINING AREA	6,000	SF	\$45.00	
17140	ARMY RESERVE CENTER BLD	20,000	SF	\$168.00	FOR OTHER RESERVE FACILITIES USE UNIT COST FROM APPROPRIATE FACILITY TYPE
17141	ARMED FORCES RESERVE CENTER BLD	20,000	SF	\$168.00	NEW CAT CODE FOR RESERVE CTR
17142	ARMY NATIONAL GUARD/ARMORY	20,000	SF		THIS CAT CODE IS NO LONGER USED, WILL BE DELETED FROM DA PAM 428-15
17180	ARMY NATIONAL GUARD READINESS CTR	20,000		168.00	NEW CAT CODE FOR NG READINESS CTR
17971	OBSERVATION TOWER/BUNKER	800	SF	\$184.00	COST EXCLUDES EQUIP
21110	AIRCRAFT MAINT. HANGARS				
	MAINT GEN PURPOSE	23,000	SF	\$206.00	
	HIGH BAY MAINTENANCE	35,000	SF	\$224.00	
	CORROSION CONTROL	35,000	SF	\$194.00	
21120	A/C COMPONENT MAINT SHOP	20,000	SF	\$131.00	
21130	A/C PAINT SHOP	70,000	SF	\$242.00	
21140	A/C ENGINE TEST CELL FAC	13,000	SF	\$149.00	
21210	GUIDED MISSILE MAINT FAC	10,300	SF	\$166.00	
21410	VEHICLE MAINT SHOP - WHEELED	30,000	SF	\$153.00	
	VEHICLE MAINT SHOP - TRACK	25,000	SF	\$176.00	
21470	OIL STORAGE BLDG	700	SF	\$92.00	
21610	AMMO RENOVATION SHOP	6,500	SF	\$136.00	
21612	AMMUNITION SURVEILLANCE	13,000	SF	\$154.00	
21630	AMMUNITION DEMIL. FAC	82,500	SF	\$907.00	CHEMICAL DEMILITARIZATION FAC
21710	ELECTRONICS MAINT. SHOP	5,500	SF	\$116.00	
21740	AVIONICS MAINT SHOP	23,000	SF	\$159.00	
21850	BATTERY SHOP	5,000	SF	\$117.00	
21881	ABN EQUIP/PARACHUTE REPAIR	8,000	SF	\$188.00	
21885	INST MAINT SHOP, GEN PURPOSE	31,000	SF	\$112.00	
21910	ENG/HOUSING MAINT SHOP	31,000	SF	\$116.00	
31010	CHEMISTRY LAB	9,000	SF	\$197.00	
31410	GROUND TRANS EQUIPMENT BLDG	31,000	SF	\$151.00	
411XX	LIQUID FUEL STORAGE - BULK	2,500	BL	\$73.90	ABOVE GROUND STEEL TANKS INCLUDES FOUNDATION DIKE AND EXTERIOR COATINGS (42 US GALS/BBL)
		5,000	BL	\$49.10	
		10,000	BL	\$35.50	

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		25,000	BL	\$27.20	
		50,000	BL	\$19.70	
		100,000	BL	\$14.00	
		250,000	BL	\$12.40	
					ABOVE GRD STEEL TANK W/ FLOAT PANS INCLUDES FOUNDATION DIKE, INTERIOR EPOXY LINING & INTERIOR COATING
		2,500	BL	\$73.90	
		5,000	BL	\$49.10	
		10,000	BL	\$40.10	
		25,000	BL	\$31.10	
		50,000	BL	\$24.30	
		100,000	BL	\$18.60	
		250,000	BL	\$15.80	
42180	IGLOO STORAGE, DEPOT	5,000	SF	\$238.00	HIGH EXPLOSIVE MAGAZINE, WITH EARTH MOUNDING
42183	GENERAL PURPOSE MAGAZINE, DEPOT	10,000	SF	\$228.00	W/O CRANE
42280	IGLOO STORAGE, INSTALLATION				SEE CATCODE 42180
42283	G P MAGAZINE, INSTALLATION				SEE CATCODE 42183
43211	COLD STORAGE FACILITY				
	WAREHOUSE W/ PROCESSING	11,000	SF	\$140.00	
	COLD STORAGE WAREHOUSE	6,000	SF	\$188.00	
44110	GENERAL PURPOSE WAREHOUSE				
	LOW BAY	40,000	SF	\$87.00	16 FT STACK HEIGHT
	HIGH BAY	100,000	SF	\$95.00	UP TO 26 FT STACK HEIGHT
44130	CONTROLLED HUMIDITY WHSE, DEPOT	40,000	SF	\$87.00	
44135	HAZARDOUS MATERIAL STORAGE	21,000	SF	\$125.00	
44150	FLAMMABLE MATERIAL STRHSE	8,200	SF	\$120.00	
44181	VEHICLE STORAGE FACILITY	16,000	SF	\$43.00	OPEN
		16,000	SF	\$63.00	ENCLOSED
44210	AC PARTS STORAGE BLDG	16,000	SF	\$73.00	
44220	G P STORAGE FACILITY, INST				SEE CATCODE 44110
44222	STORAGE SHED, COVERED	24,000	SF	\$33.00	OPEN SIDES
44224	DEPLOYMENT EQUIP STG BLDG	3,400	SF	\$74.00	
44230	CONTROLLED HUMIDITY WHSE, INST				SEE CATCODE 44130
44240	FLAMMABLE MATERIAL STRHSE, INST				SEE CATCODE 44150
45110	OPEN STORAGE AREA, DEPOT				SEE CATCODE 851XX (PART -II)
45210	OPEN STORAGE AREA, INST				SEE CATCODE 851XX (PART -II)
51010	MEDICAL CENTER/HOSPITAL		SF	\$326.00	STATION HOSPITAL
				\$352.00	REGIONAL MEDICAL CTR
53060	MEDICAL WAREHOUSE	44,000	SF	\$87.00	
53071	AMBULANCE GARAGE	480	SF	\$68.00	
54010	DENTAL CLINIC	20,000	SF	\$309.00	

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CATEGORY CODE	FACILITY TYPE	REFERENCE SIZE	UNIT	UNIT COST \$/Unit	REMARK
55010	MEDICAL CLINIC	50,000	SF	\$246.00	ALSO REFERRED AS HEALTH CLINIC
	AMBULATORY CLINIC	100,000	SF	\$287.00	
61050	ADMIN FACILITY GEN PURP	25,000	SF	\$172.00	ADP CTR, AUDITORIUM, CAFETERIA, SECURITY & PRE-WIRED WORK STA. NOT INCLUDED
	PRE-WIRED WORK STATION		EA	\$5,459.00	
62010	UNDERGROUND ADMIN FAC	6,000	SF	\$183.00	HARDENED FACILITY
711XX	FAMILY HOUSING W/SPRINKLERS OR FIRE RATED CONSTRUCTION	N/A	SF	\$83.00	CONUS \$/GROSS SF INCLUDES POST AWARD DESIGN COST
	FAMILY HOUSING W/SPRINKLERS OR FIRE RATED CONSTRUCTION	N/A	SF	\$84.00	OCONUS \$/GROSS SF INCLUDES POST AWARD DESIGN COST
71410	DETACHED GARAGES	240	SF	\$45.00	SINGLE CAR/MASONRY
				\$28.00	SINGLE CAR/WOOD
71411	CARPORT	240	SF	\$23.00	OPEN SIDES
72111	UNACCOMPANIED PERSONNEL HOUSING, ENLISTED*	99,500	SF	145.00*	DOES NOT INCLUDE FREE-STANDING KITCHENETTE EQUIPMENT
	SOLDIER COMMUNITY BLDG*	14,620	SF	128.00*	300 PERSON MODULE
NOTE: ALL UNFINISHED, OR FINISHED ATTIC AREAS, WITH AN AVERAGE HEIGHT OF 2100 MM (6'-11") MEASURED FROM THE UNDERSIDE OF THE STRUCTURAL SYSTEM AND WITH PERIMETER WALLS MEASURING A MINIMUM 1500 MM (4'-11"), MUST BE COUNTED AS FULL SCOPE.					
72181	BASIC TRAINEE BARRACKS	369,370	SF	\$148.00	COST APPLIES TO ENTIRE COMPLEX
	COMPANY/BARRACKS	313,680	SF	\$139.00	BLDG ONLY, CENTRAL ENERGY PLANT (IF NEEDED) NOT INCLUDED
	BATTALION HQS	22,040	SF	\$144.00	
	DINING FACILITY	33,650	SF	\$229.00	
72210	DINING FACILITY*	21,500	SF	235.00*	INCLUDES MCA FUNDED KITCHEN EQUIPMENT & INSTALLATION COSTS
72410	UNACCOMP. OFFICERS QTRS	44,000	SF	\$174.00	DOES NOT INCLUDE FREE-STANDING KITCHENETTE EQUIPMENT
72411	UNACCOMP. OFFICERS QTRS	44,000	SF	\$174.00	TRANSIENT
73010	FIRE STATION, COMMUNITY	8,000	SF	\$190.00	
73016	POLICE/MP STATION	4,200	SF	\$150.00	
73017	CHAPEL	15,000	SF	\$213.00	
73018	RELIGIOUS EDUCATION FAC	15,000	SF	\$145.00	REPORT THIS SPACE SEPARATELY FROM THE WORSHIP SPACES IF COLLOCATED IN A CHAPEL BUILDING
73019	FAMILY LIFE CENTER	5,000	SF	\$146.00	SPACE FOR FAMILY COUNSELING, PASTORAL EDUCATION, COMMUNITY BASED ACTIVITIES IN SUPPORT OF THE COMMAND RELIGIOUS PROGRAM
73046	DEPENDENT SCHOOLS				
	ELEMENTARY		SF	\$163.00	
	JUNIOR HIGH SCHOOL		SF	\$165.00	
	HIGH SCHOOL		SF	\$174.00	

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CATEGORY CODE	FACILITY TYPE	REFERENCE SIZE	UNIT	UNIT COST \$/Unit	REMARK
74010	AUDITORIUM G P	4,000	SF	\$137.00	
74011	BOWLING CENTER	7,800	SF	\$189.00	W/ EQUIP - 8 LANES (PIN SPOTTING EQUIP & AUTO. SCORING DEVICE)
74012	CAFETERIA	5,000	SF	\$169.00	
74014	CHILD DEVELOPMENT CENTER	25,000	SF		THIS CAT CODE IS NO LONGER USED, WILL BE DELETED FROM DA PAM 428-15
74016	CHILD DEVELOPMENT CTR-SCHOOL AGE	25,000	SF	205.00	NEW CAT CODE, DOES NOT INCLUDE PLAYGROUND
74017	CHILD DEVELOPMENT CTR - UNDER 6 YEAR AGE	25,000	SF	205.00	DOES NOT INCLUDE FREE-STANDING FOOD SERVICE EQUIPMENT OR PLAYGROUND AREA AND EQUIPMENT. FOR OUTDOOR PLAY AREA, SEE CATCODE 75018
74021	COMMISSARY W/ OPERATIONAL EQUIPMENT	85,000	SF	\$159.00	
74022	SKILL DEVELOPMENT CENTER	22,000	SF	\$118.00	NON-AUTOMOTIVE CRAFTS/GENERAL SKILL
74023	CREDIT UNION	3,000	SF	\$134.00	INCLUDES VAULT
74024	SKILL DEVELOPMENT CENTER	15,000	SF	\$120.00	AUTOMOTIVE CRAFTS
74025	EDUCATION CENTER	30,000	SF	\$194.00	ARMY CONTINUING EDUC SYSTEM FACILITY
74028	PHYSICAL FITNESS CTR	30,000	SF	\$180.00	EXCLUDES INDOOR SWIMMING POOL (74042)
74030	SPORT PRO SHOP	28,000	SF	\$138.00	SNACK BAR, PRO SHOP SALES AREA INCL
74032	GUEST HOUSE	30,000	SF	\$164.00	TEMPORARY LODGING FACILITIES
74033	COMMUNITY SERVICE CENTER	34,000	SF	\$180.00	FAMILY SERVICE CTR
74041	MAIN LIBRARY	12,000	SF	\$190.00	
74046	CONSOLIDATED OPEN DINING FAC				ALSO REFERRED TO AS CONSOLIDATED CLUB. SEE CATCODE 74047
74047	NCO OPEN DINING / SERVICE CLUB	22,500	SF	\$258.00	
74048	OFFICER OPEN DINING	22,500	SF		SEE CATCODE 74047
74053	MAIN EXCHANGE	80,000	SF	\$129.00	W/ MALL SERVICE SHOPS
74056	EXCHANGE SERVICE OUTLET				SEE CATCODE 74053
74066	YOUTH CENTER	25,000	SF	\$188.00	
74068	RECREATION CENTER	20,000	SF	\$182.00	
74070	INDOOR ROLLER SKATING RINK	20,000	SF	\$105.00	
74072	INDOOR SWIMMING POOL	6,000	SF	\$165.00	25 METER NATATORIUM
74075	RECREATIONAL SUPPORT BUILDING	5,000	SF	\$76.00	ALSO RECREATIONAL EQUIP CHECKOUT
75018	PLAYGROUND, GEN PURPOSE				
	CHILD DEVELOPMENT CTR OUTDOOR PLAY AREA:				
	60 CHILD CAPACITY	6,000	SF	\$32.00	COST OF PLAY AREA INCLUDES FENCE, EQUIPMENT, AND SHED
	99 CHILD CAPACITY	9,900	SF	\$25.00	
	122 CHILD CAPACITY	12,200	SF	\$22.00	
	145 CHILD CAPACITY	14,500	SF	\$19.00	
	198 CHILD CAPACITY	19,800	SF	\$16.00	
	244 CHILD CAPACITY	24,400	SF	\$15.00	
	303 CHILD CAPACITY	30,300	SF	\$13.00	

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CATEGORY CODE	FACILITY TYPE	REFERENCE SIZE	UNIT	UNIT COST \$/Unit	REMARK
75022	MULTI-PURPOSE ATH FIELD	1	EA	\$192,690.00	TURFED AREA EXCLUDES SITE PREP & ELECTRICAL LIGHTING
75030	OUTDOOR SWIMMING POOL	13,000	SF	\$109.00	50 METER WITH CHANGE HOUSE
891XX	PLANT/UTILITIES BLDG		SF	\$167.00	NO PLANT EQUIPMENT
	<b>NO CATEGORY CODE IS AVAILABLE FOR FOLLOWING ITEMS:</b>				
	FOUNDATIONS, UNUSUAL				
	PILING, TREATED WOOD, 50' L, 12" BUTT		LF	\$27.00	
	PILING, CONCRETE 14" SQUARE		LF	\$41.00	
	PILING, CONCRETE 16" SQUARE		LF	\$43.00	
	PILING, CONCRETE 18" DIAMETER		LF	\$49.00	
	PILING, STEEL H, 50' LONG, HP12X53		LF	\$33.00	
	PILING, STEEL PIPE 12"D, CONC FILLED		LF	\$42.00	



APPENDIX A - FACILITY UNIT COST TABLE (PART II - SUPPORT FACILITIES AND ITEMS)					
CATEGORY	ITEM	QUANTITY		UNIT COST	
CODE			UNIT	\$/UNIT	REMARK
81150	UNINTERRUPTIBLE POWER SUPPLY (UPS)		KW	\$4,797.00	UTILITY SYSTEM TO ENSURE CONTINUOUS ELECTRIC PWR SUPPLY DURING OUTAGES AND INCLUDES ELECTRIC SYSTEM COMPONENTS (RECTIFIER, CHARGER, BATTERY, INVERTER, ETC)
81160	STANDBY GENERATOR				
		75	KW	\$523.00	UTILITY SYSTEM TO ENSURE CONTINUOUS ELECTRIC PWR SUPPLY DURING OUTAGES. COST INCLUDES ELECTRIC SYSTEM COMPONENTS SUCH AS RECTIFIER, CHARGER, BATTERY, INVERTER, TRANSFER SWITCH ETC)
		125	KW	\$375.00	
		200	KW	\$299.00	
		300	KW	\$255.00	
89111	POWER PLANT BUILDING		SF	\$166.00	STAND ALONE BUILDING TO HOUSE EQUIPMENT AND STATIC SWITCHGEAR NECESSARY TO GENERATE ELECTRIC POWER
81230	EXTERIOR LIGHTING w/ UNDER GROUND DISTRIBUTION		LF	\$32.00	BASED ON WOOD POLE, 1" PVC DIRECT BURIAL CONDUIT, WITH 3' DEEP EXCAVATION, #10 WIRE AND 500 WATT MV LAMINAR FIXTURE
81241	OVERHEAD ELECTRIC LINES				
	MEDIUM TO HEAVY DISTRIBUTION LINES		MI	\$109,510.00	BASED ON WOOD POLES 15 KV TO 69 KV SHORT LINES, WOOD POLE, 3 PH, 4 WIRE
	OVERHEAD W/ WOOD POLES		LF	\$25 - 30.00	BASED ON POLE SPACING 250', WITH 15 KV MAX, 3 PHASE, 4 WIRE
81242	UNDERGRD ELECTRIC LINES				
	DIRECT BURIAL:				COSTS INCL TRENCH, SAND BASE, BACKFILL AND MARKER
	# 1/0		LF	\$18.00	3/C - 600V DB
	# 4/0		LF	\$29.00	3/C - 600V DB
	UG DUCTS:				
	1-WAY-4"		LF	\$23.00	TYPE EB, PVC, CONCRETE ENCASED 3" EACH WAY, INCLUDES EXCAVATION AND BACKFILL TO 3 FEET DEEP
	2-WAY-4"		LF	\$27.00	
	4-WAY-4"		LF	\$34.00	
	6-WAY-6"		LF	\$51.00	
81320	SUBSTATION, LOAD UNINTER. SWITCH 600 AMP		KVA	\$74.00	300 KVA & BELOW W/CLF FUSES. DOES NOT INCL BUILDING (89113)
81360	TRANSFORMERS				PRIMARY DELTA OR Y, 277/480 V SECONDARY
	150 KVA		EA	\$12,330.00	OIL-FILLED, PAD MOUNTED, 3-PHASE
	500 KVA		EA	\$18,440.00	
	1,000 KVA		EA	\$33,300.00	
	2,000 KVA		EA	\$49,000.00	
82110	HEAT PLANT COAL-FIRED				
	STEAM:				
	50 MBTU/H (MILLION BTU/H)		EA	\$4,027,020.00	UTILITY SYSTEM THAT GENERATE HEAT FROM COAL AND INCLUDES FURNACE, BOILERS, WATER SUPPLY, PUMPS, PIPELINES, & FUEL & ASH HANDLING FACILITIES.
	100 MBTU/H		EA	\$7,384,680.00	
	150 MBTU/H		EA	\$10,523,500.00	
	200 MBTU/H		EA	\$13,482,170.00	
	HITEMP WATER:				
	50 MBTU/H		EA	\$3,839,730.00	INCLUDES FURNACE, BOILERS, WATER SUPPLY, PUMPS, PIPELINES, & FUEL & ASH HANDLING FACILITIES
	100 MBTU/H		EA	\$6,165,170.00	
	150 MBTU/H		EA	\$8,220,960.00	
	200 MBTU/H		EA	\$10,523,500.00	
82120	HEAT PLANT OIL-FIRED				

APPENDIX A - FACILITY UNIT COST TABLE (PART II - SUPPORT FACILITIES AND ITEMS)					
CATEGORY	ITEM	QUANTITY		UNIT COST	
CODE			UNIT	\$/UNIT	REMARK
	STEAM:				
	10 MBTU/H		EA	\$727,120.00	INCLUDES PLANT EQUIP & OIL HANDLING FACILITY
	50 MBTU/H		EA	\$2,497,950.00	
	100 MBTU/H		EA	\$4,784,100.00	
	150 MBTU/H		EA	\$6,940,340.00	
	200 MBTU/H		EA	\$8,406,570.00	
	HITEMP WATER:				
	10 MBTU/H		EA	\$657,240.00	INCLUDES PLANT EQUIP & OIL HANDLING FACILITY
	50 MBTU/H		EA	\$2,320,000.00	
	100 MBTU/H		EA	\$4,328,850.00	
	150 MBTU/H		EA	\$6,165,170.00	
	200 MBTU/H		EA	\$8,017,900.00	
82210	STEAM CONDENSATE LINES - UNDERGROUND				STEAM SUPPLY & RETURN LINES, COST INCLUDES INSULATION, FITTINGS, ACCESSORIES, 3 FEET EXCAVATION, BACKFILL AND TESTING
	COMMON CONDUIT:				
	11-1/4"		LF	\$213.00	STM: 2", RET: 1-1/2"
	10"		LF	\$194.00	STM: 1-1/2", RET: 1-1/2"
	10"		LF	\$184.00	STM: 1-1/4", RET: 1"
	10"		LF	\$182.00	STM: 1", RET: 1"
	SINGLE CONDUIT:				STEAM OR HITEMP WATER, COST INCLUDES FITTINGS, ACCESSORIES, 3 FT EXCAVATION, BACKFILL AND TESTING
	6"		LF	\$117.00	1-1/4" PIPE
	8"		LF	\$125.00	1-1/2" PIPE
	8"		LF	\$127.00	2" PIPE
	10"		LF	\$153.00	2-1/2" PIPE
	10"		LF	\$164.00	3" PIPE
	11-1/8"		LF	\$198.00	4" PIPE
	15"		LF	\$227.00	6" PIPE
82220	HOT WATER LINES - HIGH TEMPERATURE				HOT WATER SUPPLY & RETURN LINES
	COMMON CONDUIT - UNDERGROUND				INCLUDES FITTINGS, ACCESSORIES, 3 FT EXCAVATION, BACKFILL & TESTING
	12"		LF	\$166.00	HW: 1", RET: 1"
	12-7/8"		LF	\$203.00	HW: 1-1/2", RET: 1-1/2"
	15"		LF	\$250.00	HW: 2", RET: 2"
	18"		LF	\$274.00	HW: 3", RET: 3"
	21"		LF	\$319.00	HW 4", RET: 4"
82220	STEAM DISTRIBUTION MANHOLE, PREFAB STEEL, 8' X 6' HT		EA	\$16,820.00	VENT, MH VENT, NORMAL PIPING & INSTALLATION, CONDUIT, INCL LADDER
82410	GAS PIPE LINES - HEATING GAS TRANSMISSION				SEE CHART A
82610	AIR CONDITIONING/REFRIG PLANT				DOES NOT INCLUDE AIR-CONDITIONING/ REFRIGERATION PLANT, COST INCLUDES EQUIPMENT, SUCH AS COMPRESSOR, CONDENSER, PUMPS, VALVES, ONLY
	NEW BLDG		TON	\$3,309.00	
	EXISTING BLDG		TON	\$4,629.00	
83140	INDUSTRIAL WASTE TREATMENT PLANT		EA	\$1,783,950.00	500,000 GPD, TREATMENT EQUIPMENT ONLY, DOES NOT INCLUDE A BUILDING TO HOUSE THE EQUIPMENT

APPENDIX A - FACILITY UNIT COST TABLE (PART II - SUPPORT FACILITIES AND ITEMS)					
CATEGORY	ITEM	QUANTITY		UNIT COST	
CODE			UNIT	\$/UNIT	REMARK
83150	SEWAGE LIFT STATION		EA	\$206,050.00	1,000 GPM; EQUIPMENT ONLY, DOES NOT INCLUDE A BUILDING TO HOUSE THE EQUIPMENT
83210	SANITARY SEWER				SEE CHART A
83210	SANITARY SEWER MANHOLES:				MANHOLE, 4 FT ID, INCLUDES FOOTING, EXCAVATION & BACKFILL, 24" DIA COVER & FRAME
	CONCRETE, CAST-IN-PLACE				
	UP TO 8' DEEP		VLF	\$556.00	
	OVER 8' DEEP		VLF	\$595.00	
	CONCRETE, PRECAST:				
	UP TO 8' DEEP		VLF	\$384.00	
	OVER 8' DEEP		VLF	\$422.00	
832XX	MISC:				
	CATCH BASINS		EA	\$2,558.00	4 FT DEEP
	CATCH BASINS		EA	\$2,968.00	6 FT DEEP
	CURB INLETS		EA	\$603.00	GUTTERMOUTH
83310	INCINERATOR		EA	\$48,770.00	200 LB PER HR PER UNIT (EQUIPMENT ONLY, BUILDING NOT INCLUDED)
84210	WATER DISTRIBUTION LINES				SEE CHART A
84472	WATER PUMP STATION, NONPOTABLE				
	500 GPM		EA	\$74,980.00	EQUIPMENT ONLY, INCLUDES PUMPS, VALVES, AUTO CONTROLS, FILLINGS & ACCESSORIES, COMPLETE W/ INSTALLATION COSTS, DOES NOT INCLUDE A BUILDING TO HOUSE THE EQUIPMENT
	1,000 GPM		EA	\$99,530.00	
	2,000 GPM		EA	\$111,920.00	
	2,500 GPM		EA	\$115,230.00	
84610	WATER STORAGE TANK				
	ELEVATED WATER STG TANK				
	50,000 GA		EA	\$373,790.00	INCLUDES STEEL STORAGE TANK STANDPIPE, 125 FEET HIGH TOWER, VALVES AND STD FOUNDATIONS, BUT DOES NOT INCLUDE PUMPHOUSE BUILDING
	100,000 GA		EA	\$468,900.00	
	150,000 GA		EA	\$561,800.00	
	250,000 GA		EA	\$646,950.00	
	500,000 GA		EA	\$1,040,650.00	
	750,000 GA		EA	\$1,437,560.00	
	1,000,000 GA		EA	\$1,827,940.00	
	GROUND STG TANK (WATER)				
	100,000 GA		EA	\$258,810.00	INCLUDES CONCRETE TANK AND STD FOUNDATIONS, BUT DOES NOT INCLUDE EXTERNAL PIPING AND PUMPING
	250,000 GA		EA	\$429,090.00	
	500,000 GA		EA	\$528,590.00	
	1,000,000 GA		EA	\$709,970.00	
	2,000,000 GA		EA	\$1,022,930.00	
	4,000,000 GA		EA	\$1,618,070.00	
84620	RESERVOIR, POTABLE				
	250,000 GA		EA	\$418,000.00	INCLUDES 6" CONCRETE FLOOR SLAB, ORDINARY EXCAVATION AND PUMPING WITHIN
	500,000 GA		EA	\$557,410.00	
	1,000,000 GA		EA	\$769,670.00	

APPENDIX A - FACILITY UNIT COST TABLE (PART II - SUPPORT FACILITIES AND ITEMS)					
CATEGORY	ITEM	QUANTITY	UNIT	UNIT COST	REMARK
CODE				\$/UNIT	
	2,000,000 GA		EA	\$1,183,100.00	
	4,000,000 GA		EA	\$1,944,290.00	
851XX	ROADS/ PAVEMENTS				INCLUDE DRIVEWAYS, EXCLUDES VEHICLE PARKING, EARTHWORK (CUT & FILL, CATCODE 93410, COST NOT INCLUDED)
	ASPHALT CONCRETE SURFACE				
	1-1/2"		SY	\$5.10	FOR PAVEMENT ONLY, A/C SURFACE, URBAN AREA
	2"		SY	\$6.70	
	3"		SY	\$9.70	
	CONCRETE SURFACE - NON REINFORCED				
	6"		SY	\$31.00	12 FEET PASS FIXED FORM, JOINTS, FINISHING, CURING, URBAN AREA
	8"		SY	\$43.00	
	10"		SY	\$50.00	
	12"		SY	\$58.00	
	BASE COURSE (CRUSHED STONES), THICKNESS:				
	4"		SY	\$6.90	INCLUDES MATERIAL, EQUIPMENT & COMPACTION
	6"		SY	\$10.00	
	8"		SY	\$13.00	
	12"		SY	\$20.00	
	BASE COURSE (BANK RUN GRAVEL), THICKNESS:				INCLUDES MATERIAL, TRANSPORT & PLACEMENT
	6"		SY	\$5.40	
	9"		SY	\$8.00	
	12"		SY	\$11.00	
	BASE COURSE (BITUM. CONCRETE) THICKNESS:				
	4"		SY	\$12.00	
	6"		SY	\$17.00	
	8"		SY	\$23.00	
	10"		SY	\$29.00	
852XX	SIDEWALK & OTHER PAVEMENTS				INCLUDES VEHICLE PARKING AREAS, PEDESTRIAN WALKWAYS, ETC. SEE CATCODE 851XX FOR DRIVEWAYS & ROADS
85220	SIDEWALKS & WALKWAYS				
	4" CONCRETE CAST IN PLACE, NO BASE		SF	\$4.40	INCLUDES GRADING & FORMING
	2-1/2" ASPHALT CONCRETE		SF	\$2.10	
86010	RAILROAD TRACKS W/TIES AND BALLAST		LF	\$315.00	STANDARD GAUGE RAILROAD, STEEL TIES IN CONC W/ 100# RAIL, FASTNERS & PLATES COMPLETE. PARALLEL TRACKS COUNTED SEPARATELY
87110	STORM SEWER		LF		SEE CHART A
87210	FENCING & WALLS				
	CHAIN LINK:				9 GAUGE GALVANIZED STEEL
	6 FT HIGH		LF	\$20.00	TYPE A (9 GA) INCLUDES 3 STRAND BARBED WIRE
	8 FT HIGH		LF	\$24.00	
	10 FT HIGH		LF	\$28.00	

APPENDIX A - FACILITY UNIT COST TABLE (PART II - SUPPORT FACILITIES AND ITEMS)					
CATEGORY	ITEM	QUANTITY		UNIT COST	
CODE			UNIT	\$/UNIT	REMARK
87250	ENTRANCE GATES				
	4' WIDE, SINGLE SWING, 6' HIGH W/ GATE POSTS		EA	\$321.00	
	12' WIDE, SINGLE SWING, 6' HIGH W/ GATE POSTS		EA	\$881.00	FOR MOTOR OPERATED (SWING) ADD \$2,000
	24' WIDE, SWING GATE - DOUBLE, 6' HIGH		EA	\$1,539.00	FOR MOTOR OPERATED (SWING) ADD \$3,150
	36' WIDE, SLIDING GATE - DOUBLE, 8' HIGH		EA	\$2,118.00	FOR MOTOR OPERATED (SLIDE) ADD \$4,410
88110	AUTOMATIC WATER SPRINKLER SYSTEMS (2,000 SF, PROTECTED AREA ONLY, INCL GATE VALVE)				
	WET PIPE		SF	\$4.20	PROTECTED AREA ONLY
	DRY PIPE		SF	\$4.70	PROTECTED AREA ONLY
	DELUGE		SF	\$6.30	PROTECTED AREA ONLY, EXCLUDES DELUGE VALVE, PUMPING ELEVATED WATER STG, & EXTERIOR PIPING
89240	FIRE HYDRANTS, STANDARD 6' DEPTH		EA	\$3,155.00	INCL EXCAVATION & BACKFILL, 4-1/2" CUTOFF VALVE, PIPING & CONNECTION TO MAIN LINE
93210	SITE CLEARING & GRADING				
	SITE CLEARING & GRUBBING		AC	\$4,111.00	CLEAR & GRUB MEDIUM WOODED AREA, GRUB & REMOVE STUMPS & HAUL
	SITE CLEARING, MEDIUM		SY	\$0.60	SUNDRY SURFACE ITEM CLEARING EXCL. WOODS & PAVING
	GRADING:				
	ROUGH - LARGE OPEN AREA		SY	\$2.60	AVG 2' C/F, SPREAD DUMP FILL, NO COMPACTION
	FINE		SY	\$1.30	3 PASSES WITH DOZER, COMPACTION
	BORROW, UNCLASSIFIED MATERIAL		CY	\$18.00	BUY, LOAD AT PIT, UPTO 5-MILE RT HAUL, & SPREAD W/ DOZER
93220	LANDSCAPE AND PLANTING				
	TOPSOIL:				
	HAUL & SPREAD		CY	\$21.00	INCLUDES MATERIAL, TRANSPORT & PLACEMENT
	STRIP/STOCKPILE		SY	\$1.60	6" DEEP
	MULCHING:				
	WOOD CHIPS		SY	\$2.60	2" DEEP
	GRASS:				
	SEEDING		SY	\$0.80	HYD W/FERTILIZER
	SODDING		SY	\$6.80	1" DEEP BLUE GRASS
93310	DEMOLITION W/ DISPOSAL				
	BUILDING: 10,000 SF, 10' EAVE HEIGHT, 25 MILES HAUL, NO DISPOSAL (DUMP) FEE INCLUDED. RECYCLE WILL REDUCE DISPOSAL COST:	<b>NOTE:</b> ASBESTOS REMOVAL/DISPOSAL NOT INCLUDED. COST ESTIMATE FOR THIS WORK ITEM SHOULD BE BASED ON SITE SURVEY/EVALUATION AND LOCAL EXPERIENCE, AND SEPARATELY IDENTIFIED.			
	CONCRETE STRUCTURE		PER BLDG SF	\$5.50	FOUNDATION REMOVAL OR VALUE OF RECOVERED CONCRETE AGGREGATE FOR USE AS ENGINEERED BACKFILL NOT INCLUDED
	STEEL FRAME BUILDING		PER BLDG SF	\$4.20	FOUNDATION REMOVAL OR SALVAGE VALUE CREDIT FOR STEEL MEMBERS AND STEEL SCRAP NOT INCLUDED
	MASONRY BLDG		PER BLDG SF	\$4.70	FOR SIMPLE CONCRETE BLOCK CONSTRUCTION, NO FOUNDATION
	WOOD FRAME		PER BLDG SF	\$3.50	FOR POST AND BEAM OR STUD WALL

APPENDIX A - FACILITY UNIT COST TABLE (PART II - SUPPORT FACILITIES AND ITEMS)					
CATEGORY	ITEM	QUANTITY	UNIT	UNIT COST	REMARK
CODE					
	CONCRETE SLAB 6" THICK (IF SEPARATE FROM BLDG)		SF	\$2.30	6 INCH THICK WITH TURNED DOWN FOOTING
	BUILDING INTERIOR		SF	\$0.00	NOT REQUIRED FOR CONVENTIONAL DEMOLITION
	LEAD BASED PAINT (LPB) REMOVAL/DISPOSAL		N/A	\$0.00	
	<b>NOTE:</b> LPB IS NOT REQUIRED TO BE ABATED PRIOR TO OR AS A PART OF THE BLDG DEMOLITION, UNLESS SPECIFICALLY REQUIRED IN COMPLIANCE WITH EM 385-1-1. UNLESS OTHERWISE RESTRICTED, MATERIALS COATED W/ LPB MAY BE PLACES IN THE INSTALLATION LANDFILL.				
	CONCRETE PAVEMENT, UPTO 4" THICK		SY	\$16.00	1.32/SF, INCLUDES 2" GRAVEL
	BITUMINOUS PAVEMENT, 2" THICK		SY	15.00	\$1.25/SF, INCLUDES 2" GRAVEL
93410	CUT AND FILL				
	EARTH:				
	CUT & FILL, 200 HP DOZER, 300 FT HAUL		CY	\$8.00	COMMON EARTH FILL & SPREAD
	EXCAVATION, BULK DOZER		CY	\$8.60	COMMON EARTH, HAULING 2 MILE ROUND TRIP
	EXCAVATION, TRENCH-MACHINE		CY	\$5.90	4 FT DEEP, 2 FT WIDE, MEDIUM SOIL
	EXCAVATION TRENCH-HAND		CY	\$45.00	2 TO 6 FT DEEP, MEDIUM SOIL
	BACKFILL-MACHINE		CY	\$6.90	INCLUDES COMPACTION
	BACKFILL-HAND		CY	\$33.00	INCLUDES COMPACTION
	ROCK:				
	EXCAVATION ROCK, HARD		CY	\$87.00	DRILL BLAST BY MACHINE
	EXCAVATION SHALE, MEDIUM		CY	\$47.00	RIPPER DOZER AND LOAD
	EXCAVATION ROCK TRENCH-HAND		CY	\$145.00	BY HAND /AIR TOOL
88040	AT/FP VEHICULAR BARRICADES				
	<b>Barrier Standards</b>				
	<b>SD-STD-02.01</b> specifies perpendicular barrier impact by a <b>15,000 lb. (6810 kg)</b> vehicle <b>"K"</b> indicates the Dept of State certified barrier's maximum vehicle impact speed rating <b>"L"</b> indicates the test vehicle's distance of penetration upon impact with barrier				
	<b>K12</b> = 50 mph (880 kph) <b>K8</b> = 40 mph (65 kph) <b>K4</b> = 30 mph (48 kph)				<b>L3</b> = 3 ft. (915 mm) <b>L2</b> = 3 ft. to 20 ft. (915 mm to 6.1 m) <b>L1</b> = 20 ft. to 50 ft. (6.1 m to 15.3 m)
	<b>Note:</b> Electrical connection costs are only included up to five feet from the unit. Additional electrical power requirements to be added separately. All active fixed barriers with a remote control panel include costs for barrier installation, safety loops, traffic arm, and traffic lights. CCTV, cameras, alarms, etc. not included with these costs.				
	PORTABLE BEAM BARRICADE		EA	\$25,440.00	RATED K4/L2, NO FDN REQUIRED, MOVE WITH FORKLIFT, STOPS 15,000 LB VEHICLE AT 30 MPH
	PORTABLE HYDRAULIC BARRICADE		EA	\$35,610.00	TRANSPORTABLE RISING ROAD PLATE BARRICADE, SET UP WITH FORKLIFT, STOPS 15,000 LB VEHICLE AT 30 MPH
	PORTABLE HEDGEHOG BARRICADE		EA	\$3,052.00	BARRICADE MADE OF PAINTED STRUCTURAL STEEL, REMOVABLE PNEUMATIC TIRES AND TOW BAR, 12' LONG
	WEDGE BARRICADE		EA	\$55,740.00	24" HIGH, 9' LONG, REMOTE CONTROL PANEL
	WEDGE BARRICADE		EA	\$61,050.00	K4/L2 RATED, 30" HIGH, 9' LONG, REMOTE CONTROL PANEL, STOPS 15,000 LB VEHICLE AT 30 MPH
	HYDRAULIC RISING ROAD PLATE		EA	\$55,960.00	PLATE RISES TO 18" HIGH, SURFACE MOUNTED, 12' LENGTH, REMOTE CONTROL PANEL, STOPS 15,000 LB VEHICLE AT 63 MPH
	HYDRAULIC WEDGE		EA	\$71,220.00	K12/L2 RATED, 9' WIDE X 3'-2" HIGH, STOPS VEHICLE AT 50 MPH, ZERO PENETRATION

APPENDIX A - FACILITY UNIT COST TABLE (PART II - SUPPORT FACILITIES AND ITEMS)					
CATEGORY	ITEM	QUANTITY		UNIT COST	
CODE			UNIT	\$/UNIT	REMARK
	HYDRAULIC RISING ROAD PLATE		EA	\$40,700.00	PLATE RISES TO 18" HIGH, SURFACE MOUNTED, 10' LENGTH, 1' THICK STEEL PLATE, STOPS 6,000 LB VEHICLE AT 40 MPH
	HYDRAULIC RISING ROAD PLATE		EA	\$61,050.00	K12/L2 RATED, PLATE RISES TO 39" HIGH, SURFACE MOUNTED, REMOTE CONTROL PANEL, STOPS 15,000 LB VEHICLE AT 70 MPH
	RISING ROAD PLATE		EA	\$55,960.00	K12/L2 RATED, PLATE RISES TO 18" HIGH, SURFACE MOUNTED, REMOTE CONTROL PANEL, STOPS 15,000 LB VEHICLE AT 63 MPH
	RISING ROAD PLATE		EA	\$58,000.00	K12/L2 RATED, PLATE RISES TO 39" HIGH, SHALLOW FOUNDATION TO 18" DEPTH, 9' LENGTH, STOPS 15,000 LB VEHICLE AT 50 MPH
	POP-UP BOLLARD SYSTEM		EA	\$51,010.00	K4/L2 RATED, HYDRAULIC OR PNEUMATIC, SET OF THREE BOLLARDS, 13.25" DIA, 35" HIGH
	POP-UP BOLLARD SYSTEM		EA	\$53,050.00	K12/L2 RATED, HYDRAULIC, REMOTE CONTROL PANEL, 35" HIGH, 15.25" DIA, STOP-GO SIGNAL ARMS AND LIGHTS, SUMP PUMPS, STOPS 15,000 LB VEHICLE AT 50 MPH, ADD \$10,000 FOR EACH ADDL BOLLARD UP TO FIVE ADDL
	POP-UP BOLLARD SYSTEM		EA	\$51,010.00	HYDRAULIC, SET OF THREE BOLLARDS, 8.63" DIA, 24" HIGH, REMOTE CONTROL PANEL, ADD \$5,000 FOR EACH ADDL BOLLARD UP TO SEVEN ADDL
	POP-UP BOLLARD SYSTEM		EA	\$66,310.00	K4/L2 RATED, HYDRAULIC, SET OF THREE BOLLARDS, 13.25" DIA, 35" HIGH, REMOTE CONTROL PANEL, STOP-GO SIGNAL ARMS AND LIGHTS, SUMP PUMPS, STOPS 15,000 LB VEHICLE AT 30 MPH
	POP-UP BOLLARD SYSTEM		EA	\$61,210.00	K8/L2 RATED, HYDRAULIC, SET OF THREE BOLLARDS, 12.25" DIA, 35" HIGH, REMOTE CONTROL PANEL, STOP-GO SIGNAL ARMS AND LIGHTS, SUMP PUMPS, STOPS 15,000 LB VEHICLE AT 40 MPH
	MANUAL POP-UP BOLLARD SYSTEM		EA	\$5,101.00	K4/L2 RATED, COUNTER BALANCED MANUAL LIFT, 10.75" DIA, 30" HIGH
	MANUAL POP-UP BOLLARD SYSTEM		EA	\$4,080.00	24" HIGH, STOPS 10,000 LB VEHICLE AT 48 MPH AND STOPS 13,200 LB VEHICLE AT 38 MPH
	CRASH BEAM BARRICADE		EA	\$45,900.00	K4/L2 RATED, HYDRAULIC, CONCRETE BOLLARD MOUNTED, REMOTE CONTROL PANEL, STOPS 15,000 LB VEHICLE AT 30 MPH
	CRASH CABLE BEAM BARRICADE SWING GATE, MANUALLY OPERATED		EA	\$12,240.00	K4/L2 RATED, MANUAL HORIZONTAL SWING CRASH BEAM BARRIER, CONCRETE BOLLARD MOUNTED, STOPS 10,000 LB VEHICLE AT 15 MPH
	CABLE BEAM BARRICADE, HYDRAULIC		EA	\$40,800.00	K4/L2 RATED, HYDRAULIC, CONCRETE BOLLARD MOUNTED, STOPS 10,000 LB VEHICLE AT 15 MPH
	CRASH BEAM BARRICADE, HYDRAULIC		EA	\$51,010.00	K4/L2 RATED, HYDRAULIC, CONCRETE BOLLARD MOUNTED, STOPS 15,000 LB VEHICLE AT 30 MPH
	SLIDING LINEAR CRASH GATE		EA	\$63,250.00	K4/L2 RATED, 9' HIGH x 12' WIDE CLEAR OPENING GATE WITH GROUND TRACK, LINEAR GATE OPERATOR, REMOTE CONTROL PANEL, STOP-GO SIGNAL LIGHTS, STOPS 15,000 LB VEHICLE AT 50 MPH
	MANUAL CRASH SWING GATE		EA	\$15,300.00	9' HIGH x 12' WIDE CLEAR OPENING GATE
	HYDRAULIC ROLLING CRASH GATE		EA	\$48,970.00	9' HIGH x 12' WIDE CLEAR OPENING GATE, GATE LEAF LINEAR SLIDE ASSEMBLY, DRIVE SIDE GATE LEAF SUPPORTS AND GUIDES, LINEAR GATE OPERATOR, HYDRAULIC PUMP DRIVEN RACK AND PINION OPERATOR, REMOTE CONTROL PANEL, STOP-GO SIGNAL LIGHTS

APPENDIX A - FACILITY UNIT COST TABLE (PART II - SUPPORT FACILITIES AND ITEMS)					
CATEGORY	ITEM	QUANTITY		UNIT COST	
CODE			UNIT	\$/UNIT	REMARK
	SLIDING CANTILEVER CRASH GATE		EA	\$54,070.00	9' HIGH x 12' WIDE CLEAR OPENING GATE, GATE LEAF LINEAR SLIDE ASSEMBLY, DRIVE SIDE GATE LEAF SUPPORTS AND GUIDES, LINEAR GATE OPERATOR, HYDRUALIC PUMP DRIVEN RACK AND PINION OPERATOR, REMOTE CONTROL PANEL, STOP-GO SIGNAL LIGHTS. THIS GATE DOES NOT NEED TRACKS, WHEELS, OR ROLLER PATH
	PASSIVE VEHICLE BARRIER, SURFACE MOUNTED SABRE TOOTH CONTROLLER		EA	\$612.00	SURFACE MOUNTED TIRE SPIKES, 3' WIDE, MANUALLY OPERATED



CHART A To Appendix A, Part II PIPING - SITEWORK UTILITIES (Catcodes 82410, 83210, 84210, 87110)										
SIZE in INCHES	UNIT	BLACK STEEL	Notes		SIZE in INCHES	UNIT	PVC			
		\$	BLACK STEEL, SCHEDULE 40, WELDED				\$			
1	LF	\$12.20			1	LF	\$6.40			
2	LF	\$17.70			2	LF	\$9.60			
3	LF	\$21.90			3	LF	\$12.80			
4	LF	\$26.90			4	LF	\$19.20			
6	LF	\$33.20			6	LF	\$24.90			
10	LF	\$72.40			10	LF	\$31.40			
12	LF	\$103.50			12	LF				
18	LF	\$136.60			18	LF				
24	LF	\$232.30			24	LF				
36	LF				36	LF				
60	LF				60	LF				
SIZE in INCHES	UNIT	CORRUGATED				SIZE in INCHES	UNIT	HDPE		
		\$						\$		
1	LF					1	LF			
2	LF					2	LF			
3	LF					3	LF			
4	LF					4	LF	\$8.00		
6	LF	\$11.10				6	LF	\$13.50		
10	LF	\$17.30				10	LF	\$19.60		
12	LF	\$20.60				12	LF	\$26.30		
18	LF	\$29.00				18	LF	\$49.40		
24	LF	\$48.40				24	LF	\$80.50		
36	LF	\$80.00				36	LF			
60	LF	\$202.50			60	LF				
SIZE in INCHES	UNIT	DUCTILE IRON			SIZE in INCHES	UNIT	CONCRETE			
							PLAIN	REINF.		
							\$	\$		
1	LF				1	LF				
2	LF				2	LF				
3	LF				3	LF				
4	LF	\$20.60			4	LF				
6	LF	\$23.40			6	LF	\$15.40			
10	LF	\$41.10			10	LF	\$17.90			
12	LF	\$52.30			12	LF	\$19.90	\$25.70		
18	LF	\$91.80			18	LF	\$31.50	\$36.30		
24	LF	\$123.60			24	LF	\$36.30	\$47.10		
36	LF				36	LF		\$119.90		
60	LF				60	LF		\$187.00		
SIZE in INCHES	UNIT	REINF. PLASTIC			SIZE in INCHES	UNIT	VITRIFIED CLAY			
		\$					STANDARD	EXTRA		
							STRENGTH	STRENGTH		
							\$	\$		
1	LF				1	LF				
2	LF				2	LF				
3	LF	\$10.50			3	LF				
4	LF	\$19.10			4	LF	\$7.60	\$8.80		
6	LF	\$23.30			6	LF	\$10.60	\$11.70		
10	LF	\$52.90			10	LF	\$18.80	\$21.80		
12	LF	\$64.90			12	LF	\$22.40	\$24.70		
18	LF				18	LF	\$48.80	\$59.40		
24	LF				24	LF	\$99.40	\$118.50		
36	LF				36	LF	\$202.80	\$225.00		
60	LF				60	LF				

**CHART A To Appendix A, Part II PIPING - SITEWORK UTILITIES**

NOTES:

1. Black Steel, schedule 40, welded.
2. Corrugated metal piping, galvanized 16 gage up to 18", 14 gage for 24", 12 gage up to 60".
3. Ductile iron, cement lined, class 50 water pipe, 18' in length, and mechanical joint.
4. Reinforced Plastic, fiberglass reinforced, plain end pipe.
5. PVC, schedule 40, Class 150 pipe.
6. Cost includes furnishing and installing pipe only. Trenching, bedding, backfill and compaction must be added to these costs.
7. For cathodic protection (if required), add 14% of total piping cost.

**CHART C**  
**METRIC/ENGLISH SYSTEMS**

<b><u>QUANTITY</u></b>	<b><u>FROM</u></b>	<b><u>MULTIPLY BY</u></b>	<b><u>TO OBTAIN</u></b>
LENGTH	inch	25.400000	millimeter
	foot	0.304800	meter
	yard	0.914400	meter
	mile (U.S. Status)	1.609344	kilometer
	millimeter	0.039370	inch
	meter	3.280840	foot
	meter	1.093613	yard
	kilometer	0.621370	mile
AREA	square inch	645.160300	square millimeter
	square foot	0.092903	square meter
	square yard	0.836127	square meter
	square mile	2.589998	square kilometer
	acre	4046.873000	square meter
	acre	0.404687	hectare
	square millimeter	0.001550	square inch
	square meter	10.763910	square foot
	square meter	1.195990	square yard
	square kilometer	0.386101	square mile
	square meter	0.000247	acre
	hectare	2.471044	acre
	cubic inch	16387.060000	cubic millimeter
	cubic foot	0.028316	cubic meter
VOLUME	cubic yard	0.764555	cubic meter
	gallon (U.S. liquid)	3.785412	liter
	quart (U.S. liquid)	0.946353	liter
	cubic millimeter	0.000061	cubic inch
	cubic meter	35.314662	cubic foot
	cubic meter	1.307951	cubic yard
	liter	0.264172	gallon
	liter	1.056688	quart
	ounce (avoirdupois)	28.349520	gram
	pound (avoirdupois)	0.453592	kilogram
MASS	short ton	907.185000	kilogram
	gram	0.035273	ounce
	kilogram	2.204622	pound
	kilogram	0.001102	short ton
	ton (refrigeration)	3.517000	kw
ENERGY, HEAT			
AND WORK	kilowatthour	3.600000	megajoule
	btu	1.055056	kilojoule
	horsepower hour	2.684520	megajoule
	megajoule	0.277780	kilowatthour
	kilojoule	0.947817	btu
	megajoule	0.372506	horsepower hour

**CHART C**  
**METRIC/ENGLISH SYSTEMS**

<b><u>QUANTITY</u></b>	<b><u>FROM</u></b>	<b><u>MULTIPLY BY</u></b>	<b><u>TO OBTAIN</u></b>
	btu/s	1.055056	kw
	hp (electric)	745.700000	w
	btu/h	0.293071	w
	kw	0.284333	ton (refrigeration)
	kw	0.947817	btu/s
	w	0.001341	hp (electric)
	w	3.412141	btu/h

**APPENDIX C ( TM 5-800-4 )  
TRI-SERVICE MILITARY CONSTRUCTION PROGRAM (MCP) INDEX  
FOR FY 2007 THRU FY 2012 PROGRAMS**

<u>FISCAL YEAR (FY)</u>	<u>DATES</u>	<u>INDEX</u>	<u>ESCALATION PERCENTAGE FOR FISCAL YEAR</u>
<b>2005</b>	<b>1-Oct- 2004</b>	<b>2251</b>	
	1-Jan- 2005	2264	
	1-Apr- 2005	2276	
	1-Jul- 2005	2289	
<b>2006</b>	<b>1-Oct- 2005</b>	<b>2301</b>	
	1-Jan- 2006	2314	
	1-Apr- 2006	2327	
	1-Jul- 2006	2340	
<b>2007</b>	<b>1-Oct- 2006</b>	<b>2352</b>	
	1-Jan- 2007	2365	
	1-Apr- 2007	2377	
	1-Jul- 2007	2389	
<b>2008</b>	<b>1-Oct- 2007</b>	<b>2401</b>	
	1-Jan- 2008	2414	
	1-Apr- 2008	2426	
	1-Jul- 2008	2439	
<b>2009</b>	<b>1-Oct- 2008</b>	<b>2451</b>	
	1-Jan- 2009	2464	
	1-Apr- 2009	2477	
	1-Jul- 2009	2490	
<b>2110</b>	<b>1-Oct- 2009</b>	<b>2502</b>	
	1-Jan- 2010	2516	
	1-Apr- 2010	2530	
	1-Jul- 2010	2544	
<b>2111</b>	<b>1-Oct- 2010</b>	<b>2557</b>	
	1-Jan- 2011	2571	
	1-Apr- 2011	2585	
	1-Jul- 2011	2599	
<b>2112</b>	<b>1-Oct- 2011</b>	<b>2613</b>	
	1-Jan- 2012	2628	
	1-Apr- 2012	2642	
	1-Jul- 2012	2656	
<b>2113</b>	<b>1-Oct- 2012</b>	<b>2670</b>	

**Notes**

1. Use **2.2%** per fiscal year for projection beyond FY **2012**
2. Tri - Service MCP Index (1,000) = 1 October 1979 ENR Historical Building Cost Index (1,900)
3. The MCP indexes after October 2005 were derived based on the Price Escalation Indices (Annual Rates in Percentages) for Budget Authority published in the Memorandum, dated 19 January 2006, from the Under Secretary of Defense (Comptroller), Subject: Inflation Guidance - Fiscal Year (FY) 2007 President's Budget.
4. This revised index table supersedes the index table published on **15 March 2005**

**PAX NEWSLETTER 3.2.2, dated 30 Mar 2006**

**Table I: Size Adjustment Factors for Military Construction**

Size Relationship Ratio	Size Adjustment Factor	Size Relationship Ratio	Size Adjustment Factor	Size Relationship Ratio	Size Adjustment Factor
< 0.05	1.275	1.05	0.995	2.10	0.939
0.05	1.275	1.10	0.990	2.15	0.937
0.10	1.269	1.15	0.986	2.20	0.936
0.15	1.232	1.20	0.982	2.25	0.935
0.20	1.202	1.25	0.978	2.30	0.933
0.25	1.175	1.30	0.974	2.35	0.932
0.30	1.152	1.35	0.971	2.40	0.931
0.35	1.132	1.40	0.968	2.45	0.930
0.40	1.114	1.45	0.965	2.50	0.929
0.45	1.098	1.50	0.962	2.55	0.928
0.50	1.084	1.55	0.960	2.60	0.927
0.55	1.072	1.60	0.957	2.65	0.926
0.60	1.060	1.65	0.955	2.70	0.925
0.65	1.050	1.70	0.953	2.75	0.924
0.70	1.041	1.75	0.951	2.80	0.924
0.75	1.033	1.80	0.949	2.85	0.923
0.80	1.025	1.85	0.947	2.90	0.922
0.85	1.018	1.90	0.945	2.95	0.921
0.90	1.011	1.95	0.943	3.00	0.921
0.95	1.005	2.00	0.942	3.05 & over	0.920
1.00	1.000	2.05	0.940		

**Table II: Project Size Adjustment Factors for Barracks & Family Housing projects**

MILITARY FAMILY HOUSING PROJECT SIZE ADJUSTMENT FACTORS		BARRACKS/ DORMITORIES PROJECT SIZE ADJUSTMENT FACTORS	
NUMBER OF UNITS IN THE PROJECT	PROJECT SIZE FACTOR	NUMBER OF SOLDIERS IN THE PROJECT	PROJECT SIZE FACTOR
1-9	1.25	1-99	1.07
10-19	1.15	100-149	1.03
20-49	1.10	150-199	1.00
50-99	1.04	200-299	0.97
100-199	1.00	300+	0.95
200-299	0.93		
300+	0.90		